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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,566	07/27/2001	Jyoti Mazumder	POM-12502/29	1977
25006 7590 08/04/2008 GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C PO BOX 7021 TROY, MI 48007-7021				
EXAMINER CABRERA, ZOILA E				
ART UNIT 2123		PAPER NUMBER		
MAIL DATE 08/04/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## **DETAILED ACTION**

### ***Examiner's comment***

1. Applicants are advised that prosecution is being reopened after the decision rendered 6/30/05 where the examiner was affirmed in part, in accordance with 37 CFR § 1.198 which states:

When a decision by the Board of Patent Appeals and Interferences on appeal has become final for judicial review, prosecution of the proceeding before the primary examiner will not be reopened or reconsidered by the primary examiner except under the provisions of § 1.114 or § 41.50 of this title without the written authority of the Director, and then only for the consideration of matters not already adjudicated, sufficient cause being shown.

Applicants are advised the examiner has found sufficient cause that the prosecution in this application has been found to reopen prosecution.

The Board Decision of June 30, 2006 affirmed in part the Examiner because he failed to address some limitations of independent claim 5. In further performing a search, Serial No. 09/917,096 was found wherein similar limitations, not previously addressed by the Examiner, were addressed in the presented claims and in a Board Decision of September 30, 2004 the Examiner was completely affirmed. Therefore, a detailed description as to how the claims remain rejected is presented below.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jeantette et al. (US 6,046,426)** in view of **Kar et al. (US 6,526,327 B2)**.

**Jeantette** discloses:

5. A method of depositing material on a substrate (Col. 1, lines 10-14), comprising the steps of:  
  
heating the substrate with a high-power, rapid-response laser to create a melt pool in a laser interaction zone (Col. 9, lines 15-24; Col. 8, lines 48-51; Col. 2, lines 10-16);

feeding material into the melt pool to create a deposit having a physical dimension (Col. 2, lines 10-36);

monitoring the laser interaction zone to generate an optical signal indicative of the physical dimension (Col. 8, lines 28-60, i.e., a laser based triangulation device uses a *diode laser* that allows real-time, position-sensing data to be used to correct for variation in *layer thickness*, and provide a further signal for closed-loop process control); and controlling the deposition using the optical signal (Col. 8, lines 28-67, i.e. feedback control or closed-loop control is used with the laser triangulation device so that optimum deposition condition is achieved).

6. The method of claim 5, wherein the deposition is controlled by modulating the laser (Col. 10, lines 1-25, i.e., the use of a continuously variable beam attenuator reads on modulating the laser).

7. The method of claim 6, wherein the modulation of the laser is in the kilohertz range (Col. 10, lines 1-25, specifically lines 23-25).

8. The method of claim 6, wherein the modulation of the laser is up to 20 kHz (Col. 10, lines 1-25, specifically lines 23-25).

**Jeantette** discloses that any laser with sufficient power and reasonable absorption to melt the material would suffice as a laser source (Col. 9, lines 15-24).

However, **Jeantette** does not specifically disclose a diode laser to create a melt pool, but **Kar** discloses the use of a diode laser in an analogous system (Kar, Col. 4, lines 11-48; Col. 8, lines 44-49, i.e., the invention can use other high power lasers (i.e., Nd-based solid state lasers), and diode lasers, and the like. The invention works with continuous and pulsed lasers that supply sufficient intensity for material melting).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Jeantette** with the system of **Kar** because a diode laser is a laser with sufficient power and reasonable absorption to melt a deposited material as required by Jeantette (Kar, Col. 8. 27-64)

3. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lewis (5,837,960)** in view of **Jeantette et al. (US 6,046,426)** and further in view of **Kar et al. (US 6,526,327 B2)**.

As for claims 5-6, **Lewis** teaches:

5. A method of depositing material on a substrate (Col. 1, lines 10-14), comprising the steps of:

heating the substrate with a high-power, rapid-response laser to create a melt pool in a laser interaction zone (Col. 3, lines 25-36; Col. 4, lines 22-50);

feeding material into the melt pool to create a deposit having a physical dimension (Col. 3, lines 25-36; Col. 7, lines 4-40; Col. 6, lines 53-59).

6. The method of claim 5, wherein the deposition is controlled by modulating the laser (Col. 14, lines 24-30; Col. 19, lines 48-52).

However, **Lewis** does not disclose some limitations of claims 5, 7-8 but

**Jeantette** discloses such limitations as follows:

As for claim 5,

monitoring the laser interaction zone to generate an optical signal indicative of the physical dimension (Col. 8, lines 28-60, i.e., a laser based triangulation device uses a *diode laser* that allows real-time, position-sensing data to be used to correct for variation in *layer thickness*, and provide a further signal for closed-loop process control; and controlling the deposition using the optical signal (Col. 8, lines 28-67, i.e. feedback control or closed-loop control is used with the laser triangulation device so that optimum deposition condition is achieved).

As for claims 7-8,

7. The method of claim 6, wherein the modulation of the laser is in the kilohertz range (Col. 10, lines 1-25, specifically lines 23-25).

8. The method of claim 6, wherein the modulation of the laser is up to 20 kHz (Col. 10, lines 1-25, specifically lines 23-25).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Lewis** with the system for producing complex-shape objects of **Jeantette** because it would provide an improved system for preventing variations in layer thickness (Jeantette, Col. 8, lines 28-60).

**Lewis** and **Jeantette** disclose most of the limitations of claim 5 above and further disclose that any laser with sufficient power or energy to melt the material may be used

(see **Lewis**, Col. 19, lines 48-51 and **Jeanette**, Col. 9, lines 22-24). However, **Lewis** and **Jeanette** fail to specifically disclose using a diode laser to melt the pool. But **Kar** discloses the use of a diode laser in an analogous system (Kar, Col. 4, lines 11-48; Col. 8, lines 44-49, i.e., the invention can use other high power lasers (i.e., Nd-based solid state lasers), and diode lasers, and the like. The invention works with continuous and pulsed lasers that supply sufficient intensity for material melting).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Jeanette** and **Lewis** with the system of **Kar** because a diode laser is a laser with sufficient power and reasonable absorption to melt a deposited material as required by Lewis and Jeanette (Kar, Col. 8. 27-64)

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zoila E. Cabrera whose telephone number is 571-272-3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ZEC/  
August 4, 2008

/Donald Sparks/  
Acting Director of TC 2100

/Zoila E. Cabrera/  
Primary Examiner, Art Unit 2123

/Paul L Rodriguez/  
Supervisory Patent Examiner, Art Unit 2123



U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

## EXAMINER'S CASE ACTION WORKSHEET

Copy (Ctrl+C)	Palm Transaction Code 1322 77078212309916566		Legal Instrument Examiner
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CHECK TYPE OF ACTION

DATE OF COUNT

<input checked="" type="checkbox"/> Non-Final Rejection	<input type="checkbox"/> Restriction/Election Only	<input type="checkbox"/> Final Rejection
<input type="checkbox"/> Ex Parte Quayle	<input type="checkbox"/> Allowance	<input type="checkbox"/> Advisory Action
<input type="checkbox"/> Examiner's Answer	<input type="checkbox"/> Reply Brief Noted	<input type="checkbox"/> Non-Entry of Reply Brief
<input type="checkbox"/> Defective Notice of Appeal	<input type="checkbox"/> Interference Disposal SPE _____ (Approval for Disposal)	<input type="checkbox"/> Suspension (Examiner-Initiated) SPE _____ (initial)
<input type="checkbox"/> Defective Appeal Brief	<input type="checkbox"/> SIR Disposal (use only after FAOM)	<input type="checkbox"/> Supplemental Examiner's Amendment
<input type="checkbox"/> Miscellaneous Office Letter (With Shortened Statutory Period Set)	<input type="checkbox"/> Notice of Non-Responsive Amendment (With One Month Time Period set)	<input type="checkbox"/> Miscellaneous Office Letter (No Response Period Set)
<input type="checkbox"/> Abandonment after BPAI Decision	<input type="checkbox"/> Supplemental Action	<input type="checkbox"/> Response to Rule 312 Amendment
<input type="checkbox"/> Letter Restarting Period for Response (e.g., Missing References)	<input type="checkbox"/> Interview Summary	<input type="checkbox"/> Authorization to Change Previous Office Action SPE: _____ (Initial)
<input type="checkbox"/> Abandonment	<input type="checkbox"/> Express Abandonment Date: _____	<input type="checkbox"/> Other

Examiner's Name: Zoila E. Cabrera

AU: 2123

**Office Action Summary****Application No.**

09/916,566

**Applicant(s)**

MAZUMDER ET AL.

**Examiner**

Zoila E. Cabrera

**Art Unit**

2123

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

<b>Notice of References Cited</b>		Application/Control No. 09/916,566	Applicant(s)/Patent Under Reexamination MAZUMDER ET AL.	
		Examiner Zoila E. Cabrera	Art Unit 2123	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,837,960	11-1998	Lewis et al.	219/121.63
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.